XR-5790R/5800R

SERVICE MANUAL

AEP Model
UK Model

Photo: XR-5800R

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol □□ are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MG-25G-136

SPECIFICATIONS

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.08 % (WRMS)
Frequency response	30 – 18,000 Hz
Signal-to-noise ratio	61 dB (TYPE II, IV) (XR-5800R only)
	58 dB (TYPE I)

Tuner section

FM

Tuning range	87.5 – 108.0 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.5 % (stereo), 0.3 % (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

MW/LW

Tuning range	MW: 531 – 1,602 kHz
	LW: 153 – 281 kHz
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	MW: 30 µV
	LW: 50 µV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	35 W × 4 (at 4 ohms)

General

Outputs (XR-5800R only)	Telephone ATT control lead
Tone controls	Bass ±8 dB at 100 Hz
	Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 181 mm (w/h/d)
Mounting dimensions	Approx. 182 × 53 × 164 mm (w/h/d)
Mass	Approx. 1.2 kg
Supplied accessories	Parts for installation and connections (1 set)
	Rotary commander RM-X4S (XR-5800R: AEP, UK, South European only)
	Front panel case (1)

Design and specifications are subject to change without notice.

FM/MW/LW CASSETTE CAR STEREO

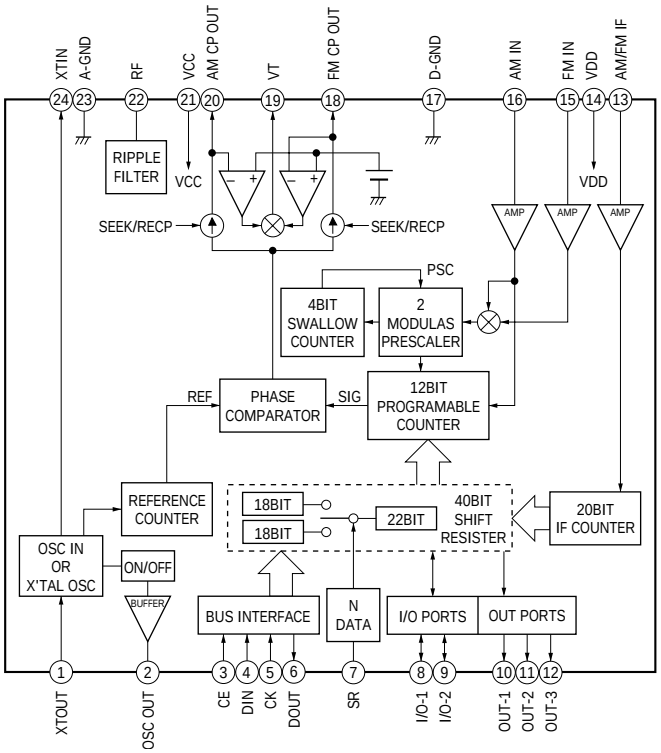
MICROFILM

SONY®

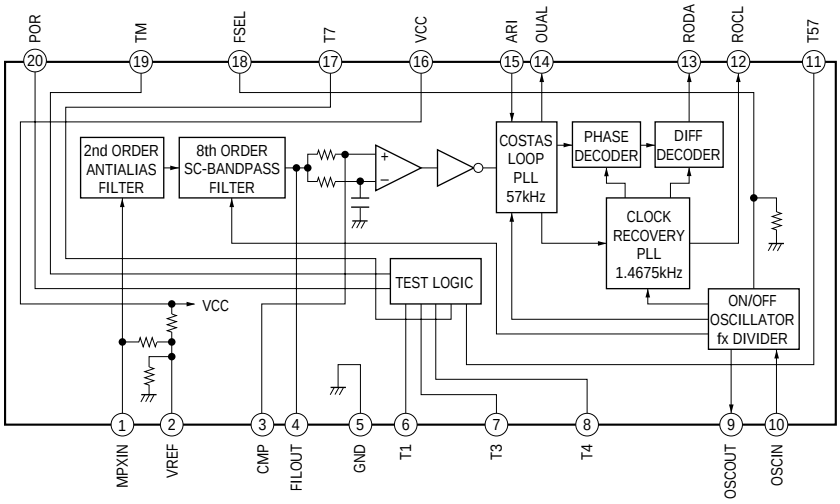
SECTION 6
DIAGRAMS

• IC Block Diagrams – MAIN Board –

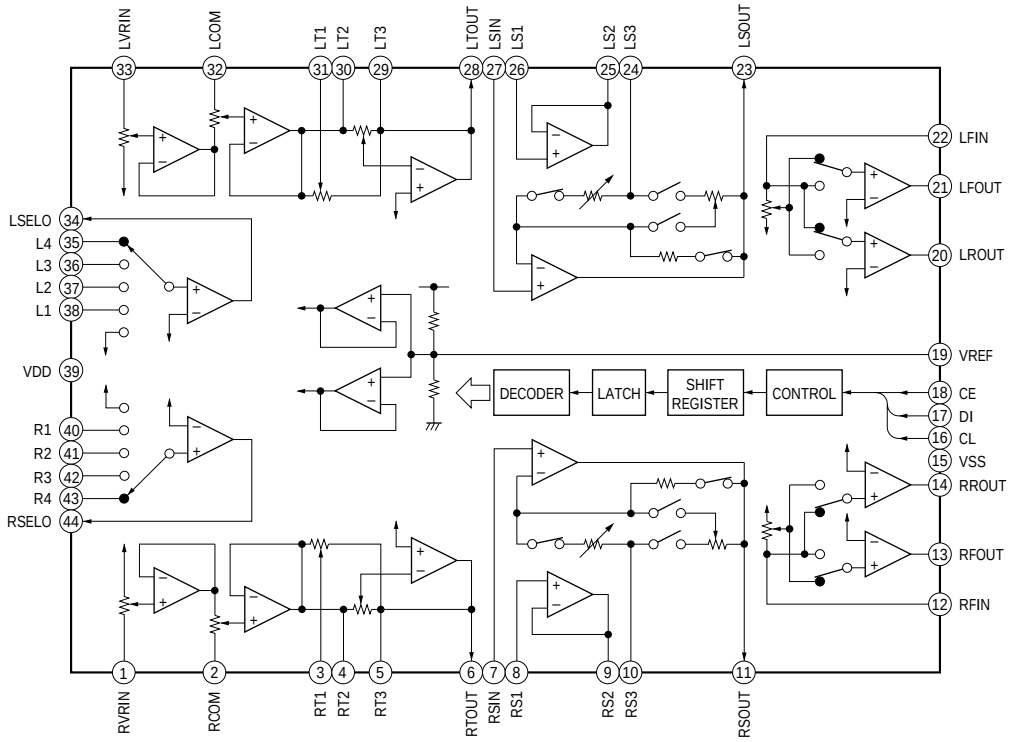
IC1 TB2114F (EL)



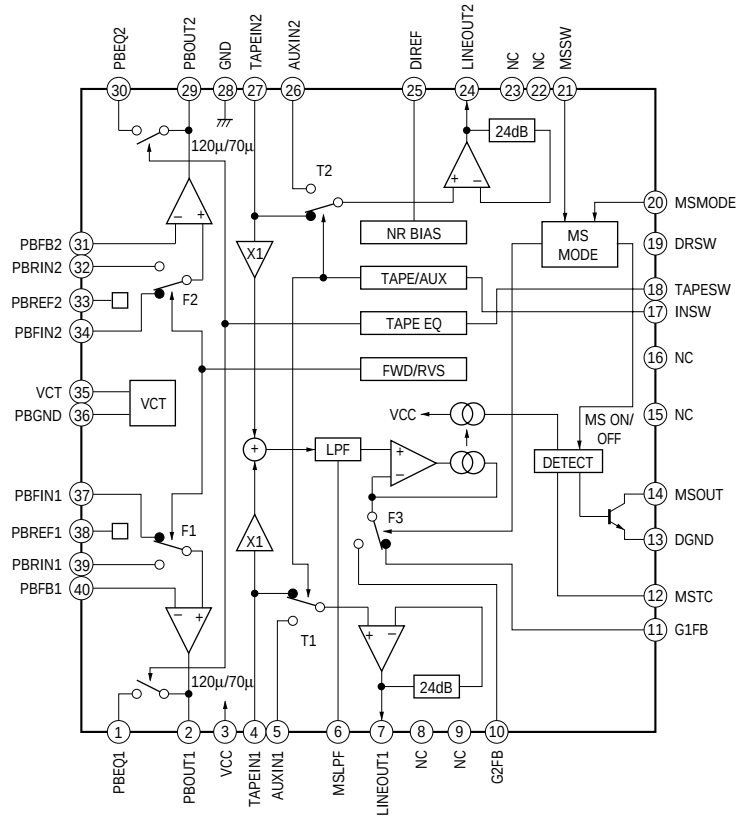
IC3 TDA7330BD-013TR



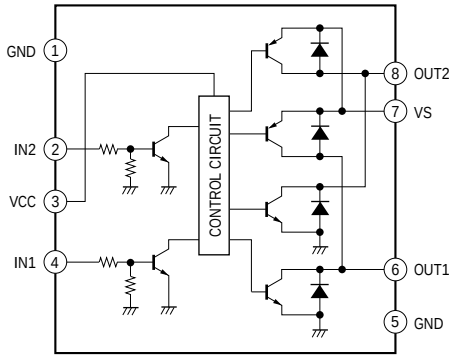
IC151 LC75373ED



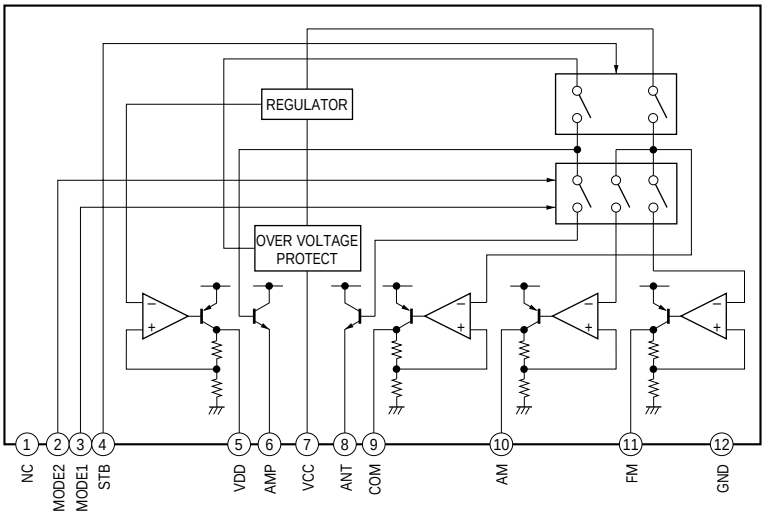
IC351 CXA2509AQ-T4



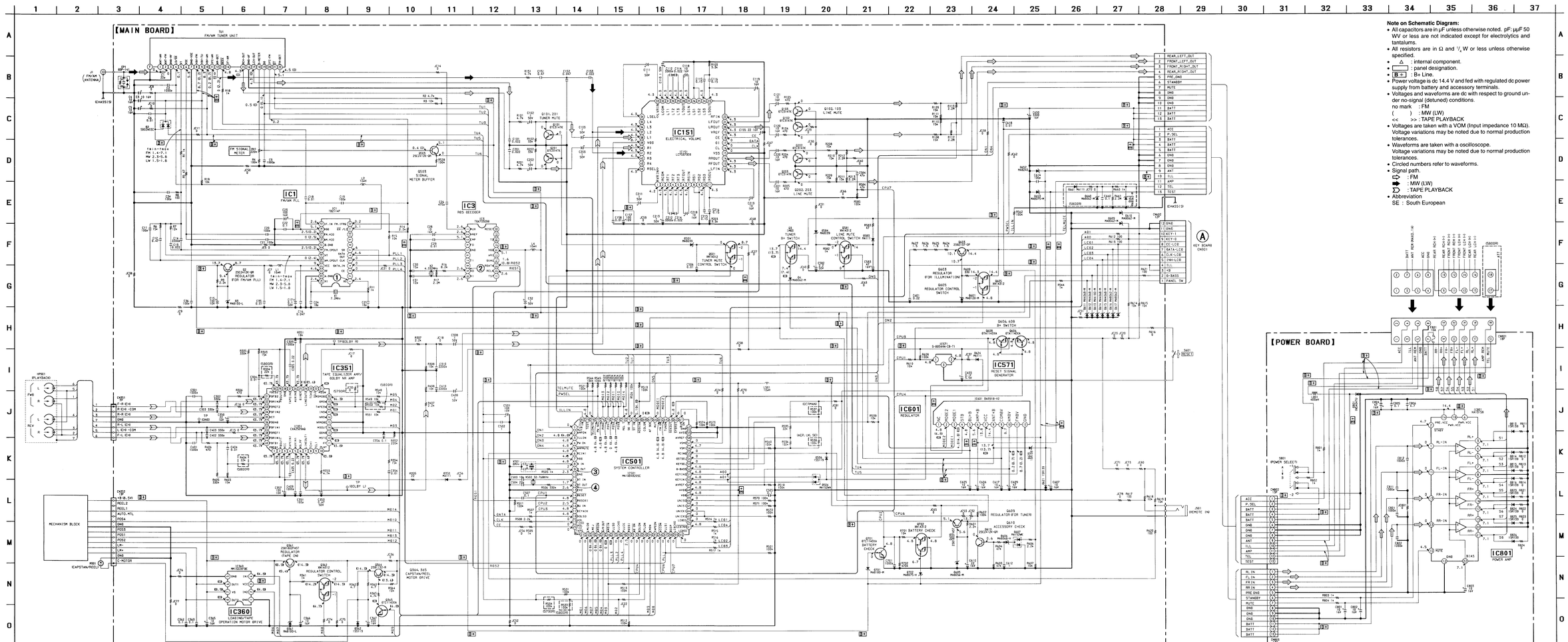
IC360 MM1322XFBE



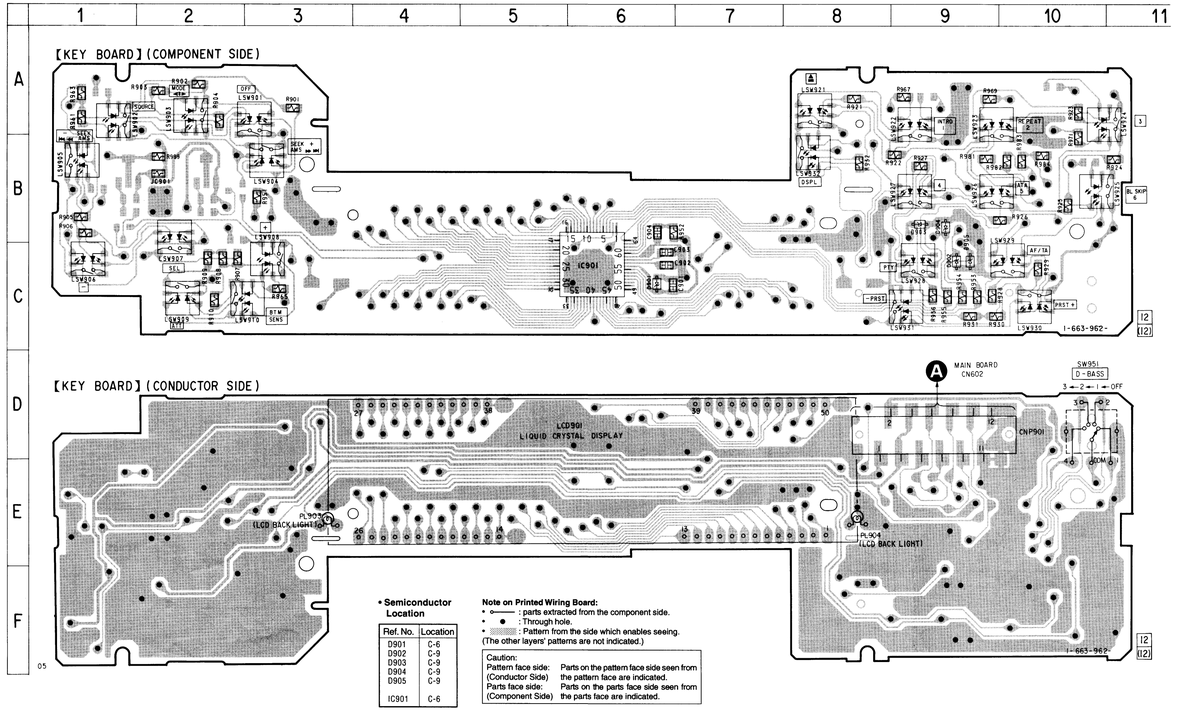
IC601 BA3918-V2



6-2. SCHEMATIC DIAGRAM – MAIN Section – • See page 18 for IC Block Diagrams, see page 21 for Waveforms, and see page 39 for IC Pin Function Description.


【MAIN BOARD】
【POWER BOARD】
IC1
IC5
IC151
IC351
IC501
IC571
IC601
IC801
IC360
Note on Schematic Diagram:
• All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and 1/4 W or less unless otherwise specified.
• △ : internal component.
• : panel designation.
• B+ : B+ Line.
• Power voltage is dc 14.4 V and fed with regulated dc power supply from battery and accessory terminals.
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM
( ) : MW (LW)
<< >> : TAPE PLAYBACK
• Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
• Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
• Circled numbers refer to waveforms.
• Signal path.
: FM
: MW (LW)
: TAPE PLAYBACK
• Abbreviation
SE : South European

6-3. PRINTED WIRNING BOARD – PANEL Section – (XR-5790R)



• Semiconductor Location

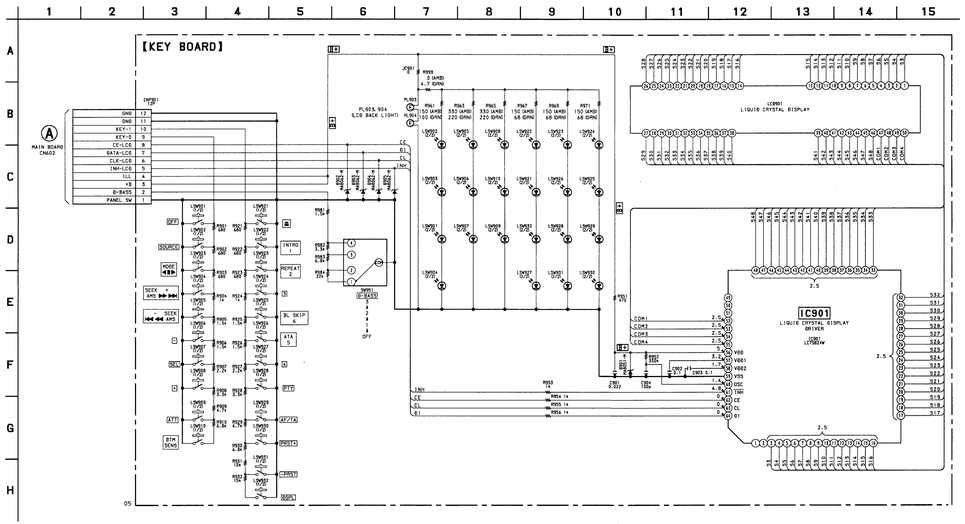
Ref. No.	Location
D901	C-6
D902	C-9
D903	C-9
D904	C-9
D905	C-9
IC901	C-6

Note on Printed Wiring Board:
- ——— : parts extracted from the component side.
- ● : Through hole.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

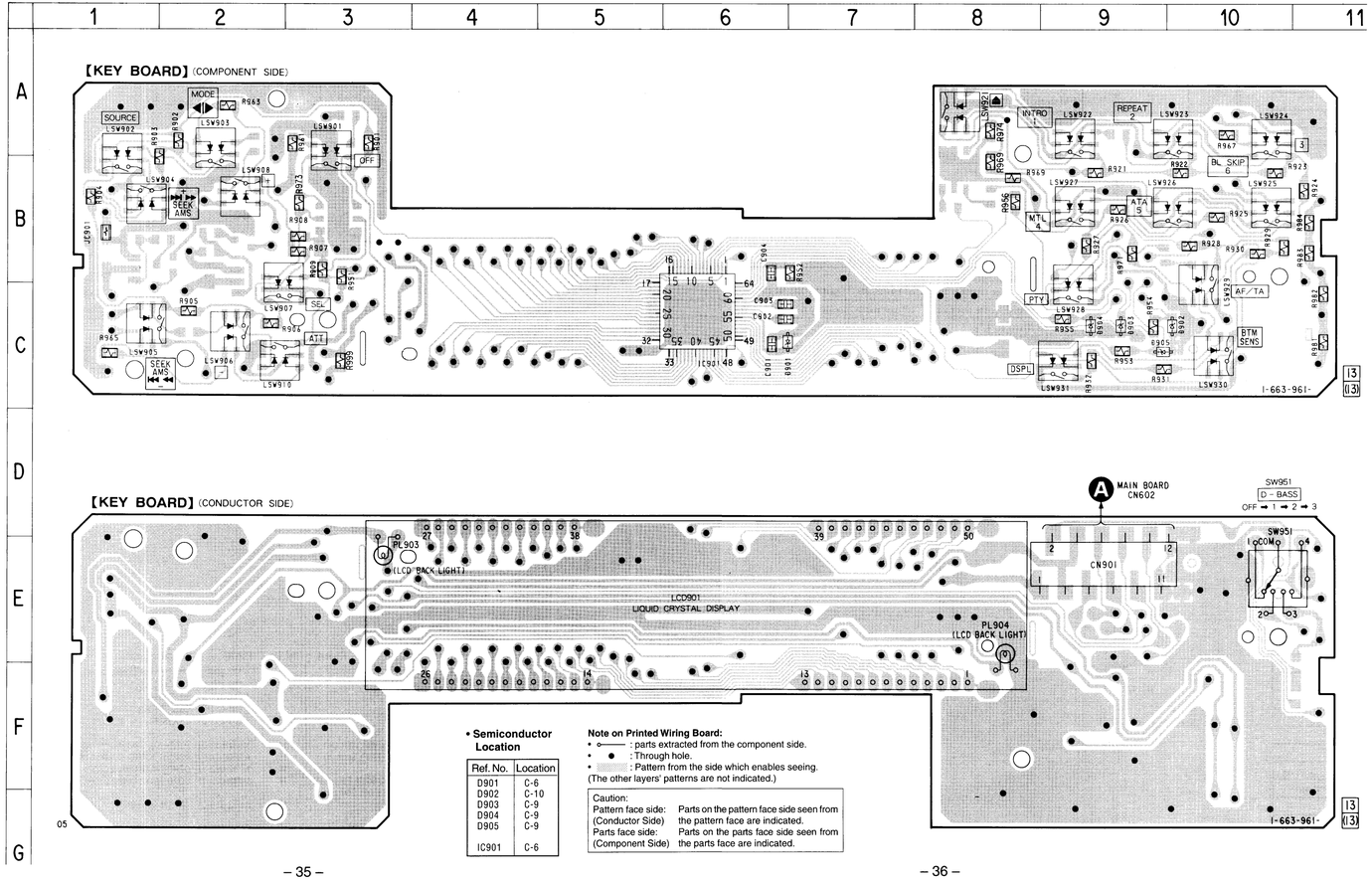
Caution:
Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

6-4. SCHEMATIC DIAGRAM – PANEL Section – (XR-5790R)



Note on Schematic Diagram:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- [ ] : panel designation.
- [B+] : B+ Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from battery and accessory terminal.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  AMB : AMBER illumination model.
  GRN : GREEN illumination model.

6-5. PRINTED WIRING BOARD – PANEL Section – (XR-5800R)



• Semiconductor Location

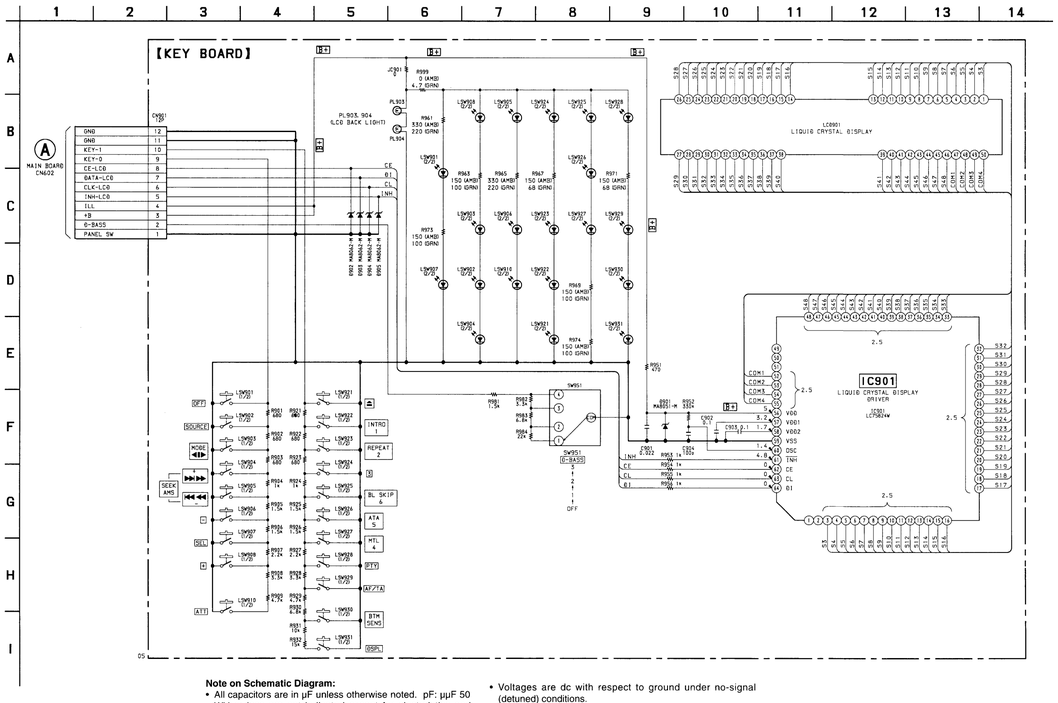
Ref. No.	Location
D901	C-6
D902	C-10
D903	C-9
D904	C-9
D905	C-9
IC901	C-6

Note on Printed Wiring Board:
- o——: parts extracted from the component side.
- ●: Through hole.
- ▨: Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side) Parts on the parts face side seen from the parts face are indicated.

6-6. SCHEMATIC DIAGRAM – PANEL Section – (XR-5800R)



Note on Schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭: panel designation.
- B+: B+ Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from battery and accessory terminal.
- Voltages are dc with respect to ground under no-signal (detuned) conditions. no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Abbreviation
  AMB : AMBER illumination model.
  GRN : GREEN illumination model.

• **MAIN BOARD IC501 MN1884820SC (SYSTEM CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1	TUNMUT	O	FM audio signal muting control output terminal "H": muting on
2	AMPON	O	Standby control signal output to the power amplifier (IC801) "L": standby
3	ILLON	O	Power supply on/off control signal output terminal at the illumination and liquid crystal display driver (IC901) "H": power on At power select switch (S801) on mode: "H" output at the accessory on At power select switch (S801) off mode: "H" output at the power on
4	PW ON	O	Main system power supply on/off control signal output to the BA3918 (IC601) "H": power on
5	$\overline{\text{AMPMUTE}}$	O	Muting control signal output to the power amplifier (IC801) "L": muting on
6	RCIN1	I	Rotary remote commander shift key A/D input terminal
7	VDD	—	Power supply terminal (+5V)
8	X IN	I	Main system clock input terminal (8 MHz)
9	X OUT	O	Main system clock output terminal (8 MHz)
10	GND	—	Ground terminal
11	XT IN	I	Sub system clock input terminal (32.768 kHz)
12	XT OUT	O	Sub system clock output terminal (32.768 kHz)
13	EX2	I	Connected to ground
14	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC571) and reset switch (S601) "L" is input for several 100 msec after power on, then it changes to "H"
15	RDSCKI	I	Serial data transfer clock signal input from the RDS decoder (IC3)
16	BU IN	I	Battery detect signal input terminal "H": battery on
17	KEYACK	I	Input of acknowledge signal for the key entry Acknowledge signal is input to accept function and eject keys in the power off status On at input of "L"
18	VOLSO	O	Serial data output to the electrical volume (IC151)
19	VOLCKO	O	Serial data transfer clock signal output to the electrical volume (IC151)
20	VOLCE	O	Chip enable signal output to the electrical volume (IC151)
21	TAPEMUT	O	Tape muting on/off control signal output to the CXA2509AQ (IC351) "H": tape muting on
22	LMLOD	O	Loading/tape operation motor control signal output to the MM1322XFBE (IC360) (For the loading direction and forward side operation) *1
23	LMEJ	O	Loading/tape operation motor control signal output to the MM1322XFBE (IC360) (For the eject direction and reverse side operation) *1
24	$\overline{\text{AMSON}}$	O	Tape auto music sensor control signal output to the CXA2509AQ (IC351) "L" is output to lower the gain for audio level at FF/REW
25	$\overline{\text{N}}$/R OUT	O	Forward/reverse direction control signal output to the CXA2509AQ (IC351) "L: forward direction, "H": reverse direction
26	$\overline{\text{AMSIN}}$	I	Whether a music is present or not from CXA2509AQ (IC351) is detected at auto music sensor "L": music is present, "H": music is not present
27	PLLSO	O	PLL serial data output to the FM/AM PLL (IC1)
28	PLLCKO	O	PLL serial data transfer clock signal output to the FM/AM PLL (IC1)
29	PLLCE	O	PLL serial chip enable output to the FM/AM PLL (IC1)
30	RDSSI	I	Serial data input from the RDS decoder (IC3)
31	$\overline{\text{AD ON}}$	O	Power supply on/off control signal output for the A/D converter "L": power on
32	DOLON	I/O	Dolby control in/out terminal At initial mode: valid/invalid selection input of dolby function ("L" input: valid) At normal mode: dolby on/off control signal output "H": dolby on Not used this function in this set (fixed at "H")

Pin No.	Pin Name	I/O	Function
33	MTLON	I/O	METAL control in/out terminal At initial mode: valid/invalid selection input of METAL function (“L” input: valid) At normal mode: METAL on/off control signal output “H”: METAL on XR-5790R: Not used this function in this set (fixed at “H”) XR-5800R: Used for the this function
34	CMON	O	Capstan/reel motor (M901) drive signal output terminal “H”: motor on
35	TAPEON	O	Tape system power supply on/off control signal output terminal “H”: tape on
36	$\overline{\text{ACCON}}$	I	Accessory detect signal input terminal “L”: accessory on
37	PLLSI	I	PLL serial data input from the FM/AM PLL (IC1)
38	BEEP	O	Beep sound output terminal
39	LCDCKO	O	Serial data transfer clock signal output to the liquid crystal display driver (IC901)
40	LCDSO	O	Serial data output to the liquid crystal display driver (IC901)
41	$\overline{\text{LCDINH}}$	O	Blank indicate control signal output to the liquid crystal display driver (IC901) “L”: no display
42	LCDCE	O	Chip enable output to the liquid crystal display driver (IC901)
43	UNICKO	O	Serial data transfer clock signal output terminal for the unilink Not used (pull down)
44	UNICKI	I	Serial data reading clock signal input terminal for the unilink Not used (fixed at “L”)
45	UNISI	I	Serial data input terminal for the unilink Not used (fixed at “L”)
46	UNISO	O	Serial data output terminal for the unilink Not used (pull down)
47	VDD	—	Power supply terminal (+5V)
48	AVDD	—	Power supply terminal (+5V) (for A/D converter)
49	AVREF+	I	Reference voltage input terminal (+5V) (for A/D converter)
50	KEYIN1	I	Key input terminal (A/D input) XR-5790R: ⏏, INTRO 1, REPEAT 2, 3, BL SKIP 6, ATA 5, 4, PTY, AF/TA, PRST +/–, DSPL keys input (LSW921 to LSW932) XR-5800R: ⏏, INTRO 1, REPEAT 2, 3, BL SKIP 6, ATA 5, MTL 4, PTY, AF/TA, BTM SENS, DSPL keys input (LSW921 to LSW931)
51	KEYIN0	I	Key input terminal (A/D input) XR-5790R: OFF, SOURCE, MODE ◀II▶, + ▶▶ ▶▶I SEEK AMS, – I◀◀ ◀◀ SEEK AMS, VOLUME –, SEL, VOLUME +, ATT , BTM SENS keys input (LSW901 to LSW910) XR-5800R: OFF, SOURCE, MODE ◀II▶, + ▶▶ ▶▶I SEEK AMS, – I◀◀ ◀◀ SEEK AMS, VOLUME –, SEL, VOLUME +, ATT keys input (LSW901 to LSW908 and LSW910)
52	D-BASS	I	D-BASS switch (SW951) input (A/D input)
53	KEYSEL	I	Setting terminal for the key (fixed at center voltage)
54	DSTSEL	I	Destination setting terminal AEP, UK, South European models: fixed at “L”, German model: fixed at “H”
55	RCIN0	I	Rotary remote commander shift key A/D input terminal
56	VSM1	I	Signal meter voltage detection input terminal Not used (fixed at “L”)
57	VSM0	I	FM and AM signal meter voltage detection input from the FM/AM tuner unit (TU1)
58	AVREF–	I	Reference ground terminal
59	AVSS	—	Ground terminal (for A/D converter)
60	GND	—	Ground terminal
61	BUSON	O	Bus on/off control signal output terminal Not used (pull down)
62	$\overline{\text{SYSRST}}$	O	Reset signal output terminal “L”: reset Not used (pull down)
63	$\overline{\text{SEKOUT}}$	O	Seek control signal output to the FM/AM tuner unit (TU1)
64	TUNON	O	Tuner system power supply on/off control signal output to the BA3918 (IC601) “H”: tuner on
65	FM ON	O	FM system power supply on/off control signal output to the BA3918 (IC601) “H”: FM on
66	MUT	O	Line muting control signal output terminal “H”: line muting on

Pin No.	Pin Name	I/O	Function
67	AF SEK	O	AF seek control signal output terminal Not used (open)
68	COLOR	I	Setting terminal for the illumination color "L": amber, "H": green Not used (open)
69	$\overline{\text{NOSESW}}$	I	Detects the removal of the attaching and removing type front panel block "L": attaching
70	$\overline{\text{ST IN}}$	I/O	Input of FM stereo detection signal from FM/AM tuner unit (TU1), and output of forced monaural control signal to FM/AM tuner unit (TU1) (Commonly used for stereo display input and forced monaural output) FM stereo detection at input of "L", forced monaural at output of "L"
71	SD IN	I	Station detector detect input from the FM/AM tuner unit (TU1) Stop level for SEEK, BTM, etc. is determined SD is present at input of "H"
72	REL T	I	Reel table rotation detect signal input from the take-up and supply reel sensor
73	POS3	I	Tape position detect input from tape operation switch on the mechanism block
74	POS2	I	
75	POS1	I	
76	POS0	I	
77	PW SEL	I	Power select switch (S801) input terminal "L": position A (halt mode), "H": position B (operation mode)
78	$\overline{\text{TELEMUTE}}$	I	Telephone muting signal input terminal At input of "L", the signal is attenuated by –20 dB Used for XR-5800R only
79	$\overline{\text{TEST}}$	I	Setting terminal for the test mode "L": test mode (normally fixed at "H")
80	ILLIN	I	Not used (fixed at "L")

*1 loading/tape operation motor control

MODE / TERMINAL	STOP	LOADING/ FORWARD	EJECT/ REVERSE	BRAKE
LMLOD (pin ㉒)	"L"	"H"	"L"	"H"
LMEJ (pin ㉓)	"L"	"L"	"H"	"H"